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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/764,906 | 01/26/2004 | Lietai Yang | 090936.0547 | 2630 |

23640 7590 02/10/2005

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| EXAMINER | |
|---|---|
| NGUYEN, VINCENT Q | |
| **ART UNIT** | **PAPER NUMBER** |
| 2858 | |

DATE MAILED: 02/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/764,906 | YANG ET AL. | |
| | Examiner | Art Unit | |
| | Vincent Q Nguyen | 2858 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 8-14* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 January 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2/24/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Information Disclosure Statement*

1. Please submit all the documents listed under Non-Patent Documents for them to be considered by the examiner.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a second array of electrodes interleaved within the electrodes (e.g. claim 10) and the third array of electrodes (e.g. claim 14) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

For the purpose of examination, examiner assumes that claims 10 and 14 recite array of electrodes.

Claim 11 depends to claim 10, the same assumption as applied to claim 10 is applied to claim 11.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 4, 5, 9-14, are rejected under 35 U.S.C. 102(b) as being anticipated by Schiessl (5,015,355).

Regarding claim 1, 10-12, 14, Schiessl discloses a device comprising (figures 2, 3) an array of substantially similar metallic electrodes (3, 4.1-4.5) arranged such that each electrode has a surface area operable to be exposed to an electrolyte at the site of the corrosion and such that each electrode is electrically insulated from other electrodes (Column 6, lines 8-20; see also the figures 2, 3), wherein a plurality of the electrodes (3, 4.1-4.5) are operable as anodes and a plurality of the electrodes are operable as cathodes; and a common electrical lead (6) connecting each electrode through a

resistor (8.1-8.5) to a common node, such that a voltage output signal from each electrode "may be" measured across a resistor associated with the electrode.

Regarding claim 2, Schiessl discloses the electrodes are each made from the same material (Column 7, line 55).

Regarding claim 4, Schiessl discloses a base (15) (Figure 8) that supports the electrodes (16) such that an exposed surface of each electrode (16) is exposed at a surface of the base (15).

Regarding claim 5, Schiessl discloses the base (15) and electrodes (16) are fabricated as an integrated circuit (figure 8).

Regarding claim 9, Schiessl discloses the base is made from a conductive material and each electrode has an outer coating that electrically insulates the electrode from the base (Column 9, lines 2-4).

Regarding claim 13, it is inherent the electrodes of Schiessl are made from pH responding material since most of corrosion sensor electrode are made form pH responding material.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiessl (5,015,355) in view of Kotylev et al. (4,158,806).

Regarding claim 3, Schiessl does not explicitly disclose each resistor has substantially the same resistance value.

Kotylev et al. discloses a system similar to that of Schiessl and further discloses resistors have substantially the same resistance value (Kotylev et al. column 4, lines 3-4) for the purpose of enhancing the accuracy of the system (Kotylev et al. column 3, lines 23-25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the resistors having the same resistance value as taught by Kotylev et al. into the system of Schiessl because resistors having the same resistance would simplify the measurement since different resistance would yield different voltage across resistor regardless of the effect of the corrosion.

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiessl (5,015,355) in view Wilson (3,924,175).

Regarding claim 6, Schiessl does not disclose the electrodes are lengths of metal extending vertically through the base.

Wilson discloses a system similar to that of Schiessl and further discloses electrodes extending vertically through the base (Wilson's figure 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the electrodes extending vertically as taught by

Wilson into the system of Schiessl because it is the normal way to detect corrosion and to reduce the surface density of ions being deposited and thereby reducing the polarization effects (Wilson's column 1, lines 23-29).

8. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schiessl (5,015,355) in view of Madou et al. (4,874,500).

Regarding claim 8, Schiessl does not disclose the base (15) is made form a nonconductive material.

Madou et al. discloses a system similar to that of Schiessl and further disclose (Figure 1) the base (12) made from a nonconductive material.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the base made from nonconductive material as taught by Madou et al. into the system of Schiessl because the base made from nonconductive material used for corrosion sensor is routine since electrodes need to be insulated other wise electrodes are connected in common node through the base (Inductive base).

***Allowable Subject Matter***

9. Claim 7 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Contact Information***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (571) 272-2234. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vincent Q. Nguyen
Primary Examiner
Art Unit 2858

V. Nguyen

February 5, 2005